GUIDELINES

Infant and Young Child Feeding Guidelines: 2010

INFANT AND YOUNG CHILD FEEDING CHAPTER, INDIAN ACADEMY OF PEDIATRICS
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Justification: The first National Guidelines on Infant and Young Child Feeding (IYCF) were formulated by Ministry of Women and Child Development (Food & Nutrition Board) in 2004, and the same guidelines were revised in 2006. India is committed to halving the prevalence of under weight children by 2015 as one of the key indicators of progress towards the Millennium Development Goals (MDG). By the end of 2009 nutritional achievement goals did not make for happy reading. So there was need to revise the existing guidelines and to have more viable and scientifically accepted national guidelines on Infant and Young child feeding.

Process: A National Consultative Meet was organized by Indian Academy of Pediatrics at Gurgaon in 2009 where members of IYCF and Nutrition Chapters of IAP, BPNI, WHO, UNICEF, USAID, WFP were present. Each group made detailed presentations after reviewing recent literature on the subject. After extensive discussions a consensus was reached and the guidelines were formulated.

Objectives: To formulate, endorse, adopt and disseminate guidelines related to Infant & Young Child feeding from an Indian perspective (including infant feeding in the context of HIV infection).

Recommendations: Optimal infant and young child feeding: Early initiation of breastfeeding, exclusive breastfeeding for the first six month of life followed by continued breastfeeding for up to two years and beyond with adequate complementary foods is the most appropriate feeding strategy for infants and young children. Adequate nutrition and anemia control for adolescent girls, pregnant and lactating mother is also advocated.

Key words: *Early initiation, Exclusive breastfeeding, Complementary feeding, Hand washing, Malnutrition, IMS Act.*

India is home to more than a third of the world's undernourished children. In 1999, the National Family Health Survey (NFHS II) found that 47 percent of all children under age three were under weight. Data from NFHS-3 (2006) shows only a very small decline, with under-nutrition level remaining around 45 percent for children below three(1). Despite vast improvements in the country's economy, undernutrition remains a challenge in India. The Tenth Five year Planning Commission had set up the National Nutritional Goals which were to be achieved by 2007(2). The major goals were:

1. Intensify nutrition and health education to improve infant and child feeding and caring practices so as to bring down the prevalence of under-weight children below three years from the current level of 47 percent to 40 percent and reduce prevalence of severe under-nutrition in children in the 0-6 years age group by 50 percent.
2. Increase early initiation of breastfeeding (colostrum feeding) from the current level of 15.8 percent to 50 percent.
3. Enhance the exclusive breastfeeding rate for the first six months from the current rate of 55.2 percent to 80 percent.
4. Enhance the complementary feeding rate at six months from the current level of 33.5 percent to 75 percent.

By the end of 2007, the nutritional achievement results were not satisfactory. Reasons for this include the inadequate knowledge of caregivers regarding correct infant and young child feeding, frequent

infections, high population pressure, low social and nutritional status of girls and women, suboptimal delivery of social services and lack of more viable guidelines.

PROCESS

To formulate new guidelines, the IYCF chapter of Indian Academy of Pediatrics organized a National Consultative Meet on the 20th anniversary of the signing of the Convention on the Rights of the Child. Various partners from WHO, UNICEF, USAIDS, WFPO, Ministry of Child Welfare Department and Academicians from various states of India met and drafted these guidelines.

OBJECTIVES

To formulate, endorse, adopt and disseminate guidelines related to Infant and Young Child

Feeding from an Indian perspective (including infant feeding in the context of HIV infection).

APPROPRIATE AND OPTIMAL INFANT AND YOUNG CHILD FEEDING PRACTICES

A. Technical Guidelines

1. Breastfeeding
2. Complementary feeding
3. Feeding in the context of HIV infection
4. Feeding in other specific situations

B. Operational Guidelines

1. Recommendations for Governmental and International Agencies
2. Role of NGOs
3. Recommendations for the media
4. Training recommendations

A. TECHNICAL GUIDELINES

1. Breastfeeding

(*a*) Breastfeeding should be promoted to mothers and other caregivers as the gold standard feeding option for babies.

(*b*) Pre-birth counseling individually or in groups organized by maternity facility regarding advantages of breastfeeding and dangers of artificial feeding should prepare expectant mothers for successful breastfeeding.

(*c*) Breastfeeding must be initiated as early as possible after birth for all normal newborns *(including those born by caesarean section)* avoiding delay beyond an hour. In case of operative birth, the mother may need motivation and support to initiate breastfeeding within the first hour. Skin to skin contact between the mother and new born should be encouraged by 'bedding in the mother and baby pair'. The method of "Breast Crawl" can be adopted for early initiation(3). Mother should communicate, look into the eyes, touch and caress the baby while feeding. The new born should be kept warm by promoting Kangaroo Mother Care and promoting local practices to keep the room warm(4).

(*d*) Colostrum must not be discarded but should be fed to newborn as it contains high concentration of protective immuno-globulins and cells. No pre-lacteal fluid should be given to the newborn.

(*e*) Baby should be fed "on cues"- The early feeding cues includes; sucking movements and sucking sounds, hand to mouth movements, rapid eye movements, soft cooing or sighing sounds, lip smacking, restlessness etc. Crying is a late cue and may interfere with successful feeding. Periodic feeding is practiced in certain situations like in the case of a very small infant who is likely to become hypoglycemic unless fed regularly, or an infant who 'does not demand' milk in initial few days. Periodic feeding should be practiced only on medical advice.

(*f*) Every mother, specially the first time mother should receive breastfeeding support from the doctors and the nursing staff, or community health workers (in case of non institutional birth) with regards to correct positioning, latching and treatment of problems, such as breast engorgement, nipple fissures and delayed 'coming-in' of milk.

(*g*) Exclusive breastfeeding should be practiced from birth till six months requirements. Mean intakes of human milk provide sufficient energy and protein to meet requirements during the first 6 months of infancy. Since infant growth potential drives milk production, the distribution of intakes likely matches the distribution of energy and protein. This means that no other food or fluids should be given to the infant below six months of age unless medically indicated(5). After comple-tion of six months of age, with introduction of optimal complementary feeding, breastfeeding should be continued for a minimum for 2 years and beyond depending on the choice of mother and the baby. Even during the second year of life, the frequency of breastfeeding should be 4-6 times in 24 hours, including night feeds.

(*h*) Mothers need skilled help and confidence building during all health contacts and also at home through home visits by trained community worker, especially after the baby is 3 to 4 months old when a mother may begin to doubt her ability to fulfill the growing needs and demands of the baby.

(*i*) Mothers who work outside should be assisted with obtaining adequate maternity/breastfeeding leave from their employers, should be encouraged to continue exclusive breastfeeding for 6 months by expressing milk for feeding the baby while they are out at work, and initiating the infant on timely complementary foods. They may be encouraged to carry the baby to a work place crèche wherever such facility exists. The concept of "Hirkani's rooms" may be considered at work places (Hirkani's rooms are specially allocated room at the workplace where working mothers can express milk and store in a refrigerator during their work schedule). Every such mother leaving the maternity facility should be taught manual expression of her breast milk.

(*j*) Mothers who are unwell or on medication should be encouraged to continue breastfeeding unless it is medically indicated to discontinue breastfeeding.

(*k*) At every health visit, the harms of artificial feeding and bottle feeding should be explained to the mother. Inadvertent advertizing of infant milk substitute in health facility should be avoided. Artificial feeding is to be practiced only when medically indicated.

(*l*) Health and Nutrition (ICDS) workers should be trained in various skills of counseling and especially in handling sensitive subjects like breastfeeding and complementary feeding.

(*m*)If the breastfeeding was temporarily discontinued due to an inadvertent situation, "re-lactation" should be tried as soon as possible. Such cases should be referred to a trained lactation consultant/health worker. The possibility of "induced lactation" shall be explored according to the situation.

(*n*) All efforts should be taken to remove hurdles impeding breastfeeding in public places.

(*o*) Adoption of latest WHO Growth Charts is recommended for monitoring growth(6).

2. COMPLEMENTARY FEEDING(7,8)

(*a*) Appropriately thick homogenous complementary foods made from locally available foods should be introduced at six completed months to all babies while continuing breastfeeding *ad libitum*. This should be the standard and universal practice(9). During this period breastfeeding should be actively supported and the term "Weaning" should be avoided(10).

(*b*) To address the issue of a small stomach size which can accommodate limited quantity at a time, each meal must be made energy dense by adding sugar/jaggery and ghee/butter/oil. To provide more calories from smaller volumes, food must be thick in consistency - thick enough to stay on the spoon without running off, when the spoon is tilted(11).

(*c*) Foods can be enriched by making a fermented porridge, use of germinated or sprouted flour and toasting of grains before grinding(10,12).

(*d*) Adequate total energy intake can also be ensured

by addition of one to two nutritious snacks between the three main meals. Snacks are in addition to the meals and should not replace meals. They should not to be confused with foods such as sweets, chips or other processed foods(12).

(*e*) Parents must identify the staple homemade food comprising of cereal-pulse mixture (as these are fresh, clean and cheap) and make them caloric and nutrient rich with locally available products.

(*f*) The research has time and again proved the disadvantages of bottle feeding. Hence bottle feeding shall be discouraged at all levels.

(*g*) Population-specific dietary guidelines should be developed for complementary feeding based on the food composition of locally available foods. A list of appropriate, acceptable and avoidable foods can be prepared.

(*h*) Iron-fortified foods, iodized salt, vitamin A enriched food etc. are to be encouraged.

(*i*) The food should be a "balanced food" consisting of various (as diverse as possible) food groups/ components in different combinations. As the babies show interest in complementary feeds, the variety should be increased by adding new foods in the staple food one by one. Easily available, cost-effective seasonal uncooked fruits, green and other dark colored vegetables, milk and milk products, pulses/legumes, animal foods, oil/ butter, sugar/jaggery may be added in the staples gradually(10,11).

(*j*) Avoid Junk and Commercial food. Avoid giving ready-made, processed food from the market, e.g. tinned foods/juices, cold-drinks, chocolates, crisps, health drinks, bakery products etc

(*k*) Avoid giving drinks with low nutrient value, such as tea, coffee and sugary drinks.

(*l*) Hygienic practices are essential for food safety during all the involved steps viz. preparation, storage and feeding. Freshly cooked food should be consumed within one to two hours in hot climate unless refrigerated. Hand washing with soap and water at critical times- including before eating or preparing food and after using the toilet (11, 12).

(*m*)Practice responsive feeding. Young children should be encouraged to take feed by praising them and their foods. Self feeding should be encouraged despite spillage. Each child should be fed under supervision in a separate plate to develop an individual identity. Forced feeding, threatening and punishment interfere with development of good / proper feeding habits(11). Along with feeding mother and care givers should provide psycho-social stimulation to the child through ordinary age-appropriate play and communication activities to ensure early childhood development.

(*n*) A skilled help and confidence building is also required for complementary feeding during all health contacts and also at home through home visits by community health workers.

(*o*) Consistency of foods should be appropriate to the developmental readiness of the child in munching, chewing and swallowing. Avoid foods which can pose choking hazard. Introduce lumpy or granular foods and most tastes by about 9 to 10 months. Missing this age may lead to feeding fussiness later. So do not use mixers/grinders to make food semisolid/pasty. The details of food including; texture, frequency and average amount are enumerated in ***Table* I**.

3. HIV AND INFANT FEEDING

(*a*) As regards infant feeding the earlier 2006 guidelines suggested that health workers should individually counsel all HIV positive mothers and help them each determine the most appropriate infant feeding strategy for their circum-stances(14). However, the current 2009 recommendations state that national health authorities should promote a single infant feeding practice as the standard of care(15). Hence based on various considerations like international recommendations, socioeconomic and cultural contexts of the country's population, the availability and quality of health services, the local epidemiology including HIV prevalence among pregnant women and main

TABLE I AMOUNT OF FOOD TO OFFER AT DIFFERENT AGES(12,13)

Age	Texture	Frequency	Average amount of each meal
6-8 mo	Start with thick porridge, well mashed foods	2-3 meals per day plus frequent Breastfeeding	Start with 2-3 tablespoonfuls
9-11 mo	Finely chopped or mashed foods, and foods that baby can pick up	3-4 meals plus breastfeed. Depending on appetite offer 1-2 snacks	½ of a 250 mL cup/bowl
12-23 mo	Family foods, chopped or mashed if necessary	3-4 meals plus breastfeed . Depending on appetite offer 1-2 snacks	3/4 to one 250 ml cup/bowl

If baby is not breastfed, give in addition: 1-2 cups of milk per day, and 1-2 extra meals per day. The amounts of food included in the table are recommended when the energy density of the meals is about 0.8 to 1.0 Kcal/g. If the energy density of the meals is about 0.6 Kcal/g, recommend to increase the energy density of the meal (adding special foods) or increase the amount of food per meal. Find out what the energy content of complementary foods is in your setting and adapt the table accordingly.

causes of infant mortality and under-nutrition, the National health authorities should decide upon the strategy that will most likely give infants the greatest chance of remaining HIV uninfected and alive. They will have to decide whether they will recommend that all HIV infected mothers *will breastfeed and receive ARV interventions OR will avoid all breastfeeding*. Currently WHO is developing guidance to assist countries in this decision-making process and will lay out steps to reach these standards of care. Whichever option is chosen, mothers should be helped and empowered to sustain that option.

(*b*) Current WHO recommendations advocate that all mothers known to be HIV-infected should be provided with antiretroviral therapy or antiretroviral prophylaxis to reduce mother to child transmission and in particular to reduce postnatal transmission through breastfeeding. Details about these interventions can be seen in the document- *Revised WHO recommendations on the use of antiretroviral drugs for treating preg-nant women and preventing HIV infection in infants* 2009 are available at *http:// www.who.int/hiv/topics/mtct/.*

(*c*) Pregnant women and mothers known to be HIV infected should be informed of the infant feeding strategy recommended by the national authority to improve HIV free survival of HIV exposed infants and informed that there are alternatives that mothers might wish to adopt.

(*d*) Hence, mothers who are known to be HIV negative OR whose HIV status is unknown OR infants of HIV positive mothers known to be HIV-infected should exclusively breastfeed their infants for the first six months of life and then introduce complementary foods while continuing breastfeeding for 24 months or beyond.

(*e*) HIV-infected mothers on antiretroviral therapy or prophylaxis (whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter, and continue breastfeeding for the first 12 months of life. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breast milk can be provided. As per the new guidelines, baby should receive daily Nevirapine from birth until one week after all exposure to breast milk has ended if the mother received only Zidovudine prophylaxis and Nevirapine from birth to 6 weeks if mother has received triple ARV prophylaxis(16).

(*f*) If a HIV positive mother chooses not to breast feed in spite of receiving ARV prophylaxis, Zidovudine or Nevirapine is indicated for 6 weeks for the baby from birth**.** Replacement feeding as mentioned below is advocated in this situation.

(*g*) Whenever HIV-infected mothers decide to stop

breastfeeding, it should be done gradually within one month. Mothers or infants who have been receiving ARV prophylaxis should continue prophylaxis for one week after breastfeeding is fully stopped.

(*h*) Infants born to HIV infected women receiving ART for their own health should receive daily Nevirapine from birth till 6 weeks of age and for those being breastfed daily, Zidovudine or Nevirapine from birth until 6 weeks of age is recommended.

Alternatives to breastfeeding include

For infants less than 6 months of age

(*i*) Expressed, heat-treated breast milk

(*ii*) Unmodified animal milk

(*iii*) Commercial infant formula milk.

(The choice/selection shall be based on AFASS criteria)

For children over 6 months of age

(*iv*) All children can be given complementary foods from six months of age (as discussed in the section on complimentary feeding). Meals including; foods, combination of milk (based / containing) feeds (especially in those who consume strict vegetarian diet) and other foods, should be provided.

Other options for all ages

(*v*) Breastfeeding by another woman who is HIV negative (wet-nursing)

(*vi*) Human milk from breast milk banks

Replavcement feeding (RF) is the process of feeding a child who is not receiving any breast milk, with a diet that provides all the nutrients until the child is fully fed on family foods. The replacement feeding option should be selected, only if all of the AFASS criteria are completely fulfilled (AFASS refers to Acceptability, Feasibility, Affordability, Safety and Sustainability)(14). Cup feeding should be the method of choice if replacement feeding needs to be done and bottles should be totally avoided. If any of the AFASS criteria is not met, the mother should practice exclusive breastfeeding till 6 months along with early treatment of breast and nipple problems of HIV+ve mother.

Mixed feeding must be avoided (except the short transition period of around a month when breast-feeding is being gradually stopped) as it causes a two fold increase in the risk of postnatal HIV transmission. Local breast conditions like nipple fissures can increase the risk of HIV transmission and hence should promptly be treated.

Mothers known to be HIV infected may consider expressing and heat-treating breast milk as *an interim feeding strategy* in special circumstances such as:

When the infant is born with low birth weight or is otherwise ill in the neonatal period and unable to breastfeed; **or**

When the mother is unwell and temporarily unable to breastfeed or has a tempo-rary breast health problem such as mastitis; **or**

If antiretroviral drugs are temporarily not available.

4. FEEDING IN OTHER SPECIFIC SITUATIONS

(*a*) Feeding during sickness is important for recovery and for prevention of under nutrition. Even sick babies mostly continue to breastfeed and the infant can be encouraged to eat small quantities of nutrient rich food but more frequently and by offering foods that the child likes to eat. After the illness the nutrient intake of child can be easily increased by increasing one or two meals in the daily diet for a period of about a month; by offering nutritious snacks between meals; by giving extra amount at each meal; and by continuing breastfeeding.

(*b*) **Infant feeding in maternal illnesses**

1. Painful and/or infective breast conditions like breast abscess and mastitis and psychiatric illnesses which pose a danger to the child's life e.g. postpartum psychosis, schizophrenia may need a temporary cessation of breastfeeding. Treatment of primary condition should be done

and breastfeeding started as soon as possible.

2. Chronic infections like tuberculosis, leprosy, or medical conditions like hypothyroidism need treatment of the primary condition and don't warrant discontinuation of breastfeeding.

3. Breastfeeding is contraindicated when the mother is receiving certain drugs like anti-neoplastic agents, immuno-suppressants, antithyroid drugs like thiouracil, amphetamines, gold salts, etc. Breastfeeding may be avoided when the mother is receiving following drugs-atropine, reserpine, psychotropic drugs. Other drugs like antibiotics, anesthetics, antiepileptics, antihistamines, digoxin, diuretics, prednisone, propranolol etc. are considered safe for breastfeeding(17).

(*c*) **Infant feeding in various conditions** related to the infant

(*i*) Breastfeeding on demand should be promoted in normal active babies. However, in difficult situations like very LBW, sick, or depressed babies, alternative methods of feeding can be used based on neuro-developmental status. These include feeding expressed breastmilk through intra-gastric tube or with the use of cup and spoon. For very sick babies, expert guidance should be sought.

(*ii*) Gastro-Esophageal Reflux Disease (GERD): Mild GERD is often treated conservatively through thickening the complementary foods, frequent small feeds and upright positioning for 30 minutes after feeds.

(*iii*) Primary Lactose Intolerance is congenital and may require long term lactose restriction. Secondary Lactose Intolerance is usually transient and resolves after the underlying GIT condition has remitted. Most of the cases of diarrhea do not require stoppage of breastfeeding.

(*iv*) Various Inborn Errors of Metabolism warrant restriction of specific offending agent and certain dietary modifications e.g. in Galactosemia, dietary lactose and galactose should be avoided. This is probably the only absolute contraindication to breastfeeding.

(*v*) During emergencies, priority health and nutrition support should be arranged for pregnant and lactating mothers. Donated or subsidized supplies of breastmilk substitutes (e.g. infant formula) should be avoided, must never be included in a general ration distribution, and must be distributed, if at all, only according to well defined strict criteria. Donations of bottles and teats should be refused, and their use actively avoided.

B. OPERATIONAL GUIDELINES

1. *Recommendations for Governmental and International Agencies*

(*a*) Global legislation, binding to all states and private organizations including labor benefits. Six months maternity and appropriate paternity leave is strongly recommended.

(*b*) Scientific and unbiased IYCF practices must be promoted through regular advertisements in state, public or private owned audiovisual and print media. Public should be made aware that artificial, junk or packaged food can be injurious to the health of the children.

(*c*) Necessary and adequate arrangements should be made for propaganda and implementation of the provisions of Infant Milk Substitute (IMS) Act which prevents advertising or promoting infant milk substitutes. In addition, further strengthening of the existing Act must be tried.

(*d*) Adopt a National policy to avoid conflict of interests in the areas of child health and nutrition. Popularization of "unscientific health claims" by commercial ads through media needs to be restricted.

(*e*) Government should explore the possibility of appointing or making Lactation counselor available at least at Block level.

(*f*) Government along with International agencies should formulate National policy on Fortification of food with micronutrients.

(*g*) The experts, academicians and government shall formulate/develop guidelines for management of Severe Acute Malnutrition (including effective home based care and treatment) in children.

2. ROLE OF NGOS

(*a*) Various programs or community projects should be initiated to provide home care and counseling on IYCF through formation of mother support groups especially by women's organizations.

(*b*) The voluntary organizations should understand and advocate important recommendations at all levels. Various like-minded organizations should work preferably on the same platform and co-ordinate with each-other in promoting the IYCF practices.

3. RECOMMENDATIONS FOR MEDIA

(*a*) Media has to take concrete steps to avoid directly or indirectly glamorizing/promoting bottle feeding, artificial, commercial and ready to use food. Instead, the risks involved in artificial feeding and other suboptimal feeding practices should be advertised prominently in bold prints.

(*b*) Media support is even more important on certain occasions, celebrations, and social mobilization activities such as World Breast Feeding Week and Nutrition Weeks.

4. RECOMMENDATIONS FOR TRAINING

It is recommended that all the community health workers, PPTCT counselors, and other personnel caring for children including doctors should undergo three days skill training on IYCF (including IMS Act). IYCF should also be included in the curriculum of undergraduate and postgraduate medical education, nursing education, home science, child nutrition courses etc. Anganwadi workers, ASHA, Dai's and other grass root level workers should be empowered by basic, scientific information related to IYCF.

Baby Friendly Concepts:

Baby Friendly Hospitals Initiatives (BFHI) is recommended to be spread to all especially medical college hospitals departments. The revised and expanded version of BFHI has been implemented by UNICEF and WHO in 2009 (18). BFHI was implemented partially in some states of India in 1992 but over the years it has not been reinforced or reevaluated. Strengthening of this initiative in the community would lead to better child survival.

The guidelines do not provide all the answers but through the application of these guidelines in day to day practice, child nutrition in the Indian subcontinent is expected to improve remarkably.

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KEY MESSAGES

- Initiation of breastfeeding as early as possible after birth, preferably within one hour.
- Exclusive breastfeeding in the first six months of life i.e., only breastfeeding or breast milk feeding and no other foods or fluids (no water, juices, tea, pre-lacteal feeds), with the exception of drops or syrups consisting of micro nutrition supplements or medicines in compromised/diseased babies.
- Appropriate and adequate complementary feeding after completion of six months of age while continuing breastfeeding. Complementary foods should not be confused with supplementary foods.
- Optimal infant and young child feeding: Exclusive breastfeeding for the first six month of life followed by continued breastfeeding with adequate complementary foods for up to two years and beyond.
- Hand washing with soap and water: Hand washing with soap and water at critical times – including before eating or preparing food and after using the toilet.
- Full immunization and Vitamin-A supplementation with deworming.
- Appropriate feeding for children during and after illness.
- Effective home based care and treatment of children suffering from severe acute malnutrition.
- Adequate nutrition and anemia control for adolescent girls, pregnant and lactating mothers.
- Effective implementation and monitoring of IMS Act.

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